Defining Polymers

What is a Polymer

- A **polymer** is a chemical compound or mixture of compounds consisting of repeating structural units created through a process of **polymerization**. (Wikipedia)
- **Polymers** are substances containing a large number of structural units joined by the same type of linkage.
- High polymers consists covalent structures many times greater in extent than those existing in simple compounds. (Paul J. Flory)

11238 Definition

- Type of polydisperse substance that contains structural repeating units linked by covalent bonds.

  Exclude protein and nucleic acid with defined sequences.

- Polymers
  - Biopolymers (Cellulose, Dextrans, Starches, Heparins)
    - Defined based on the structural repeating units, molecular weight or a property based on molecular weight and the biological source of the polymer.

Polymers

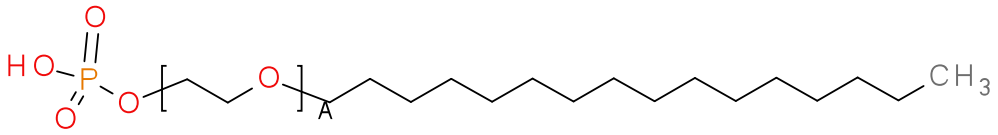
- Semi-synthetic or modified biopolymers
  - Defined based on the biopolymer plus the modification and extent of modification.
    - Fragment modifications
      - Each fragment would be identified by UNII
        - » Fragment would be what is needed when a hydrogen is replaced on the polymer
        - » Methyl fragment for methoxy; Acetyl for acetate
      - Potential site of attachments would be identified
- Synthetic Polymer
  - Type of polymer
    - Homopolymer
    - Crosslinked Homopolymer
    - Copolymer Random
    - Copolymer Block

Polymers

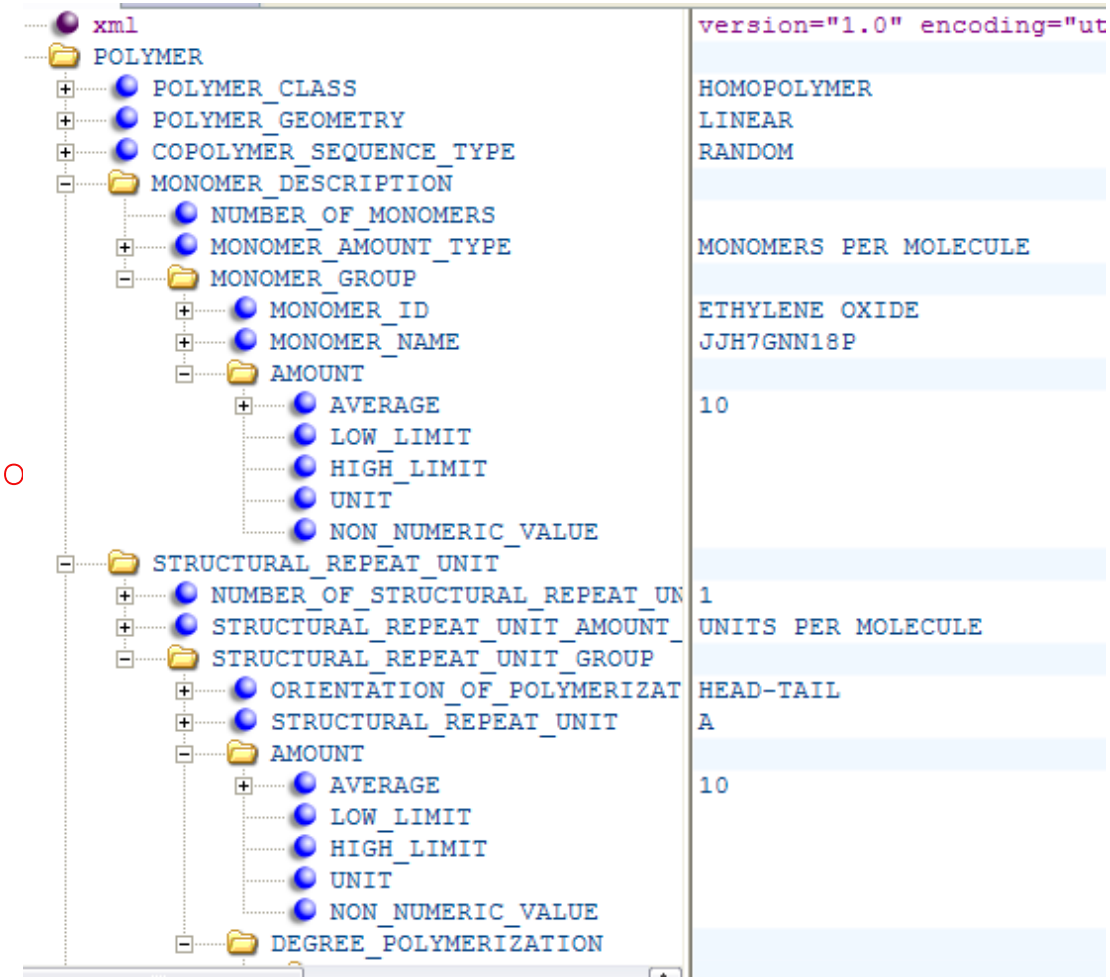
- Synthetic Polymer Continued
  - Geometry
    - Linear
    - Branched
    - Network
  - Monomers (Actual Informative or Defining?)
    - Ratio or relative amount of monomers
    - Each monomer would be described with a UNII

Polymers

- Will capture end groups if they are defined or definite.
  - CETETH-10 PHOSPHATE

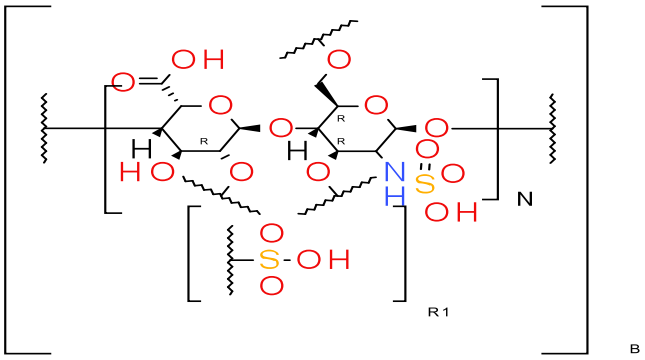


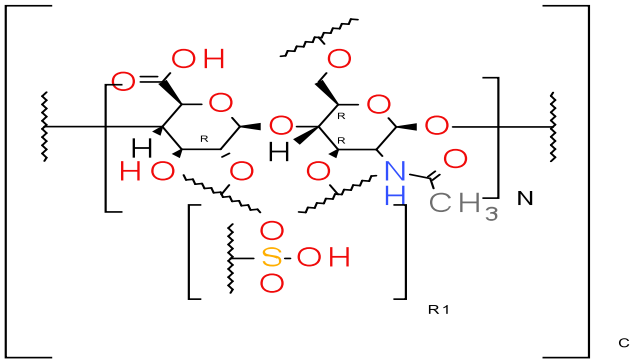
CETETH-10 PHOSPHATE

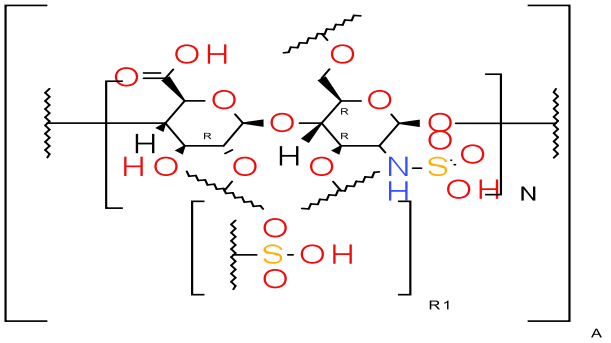


Heparin

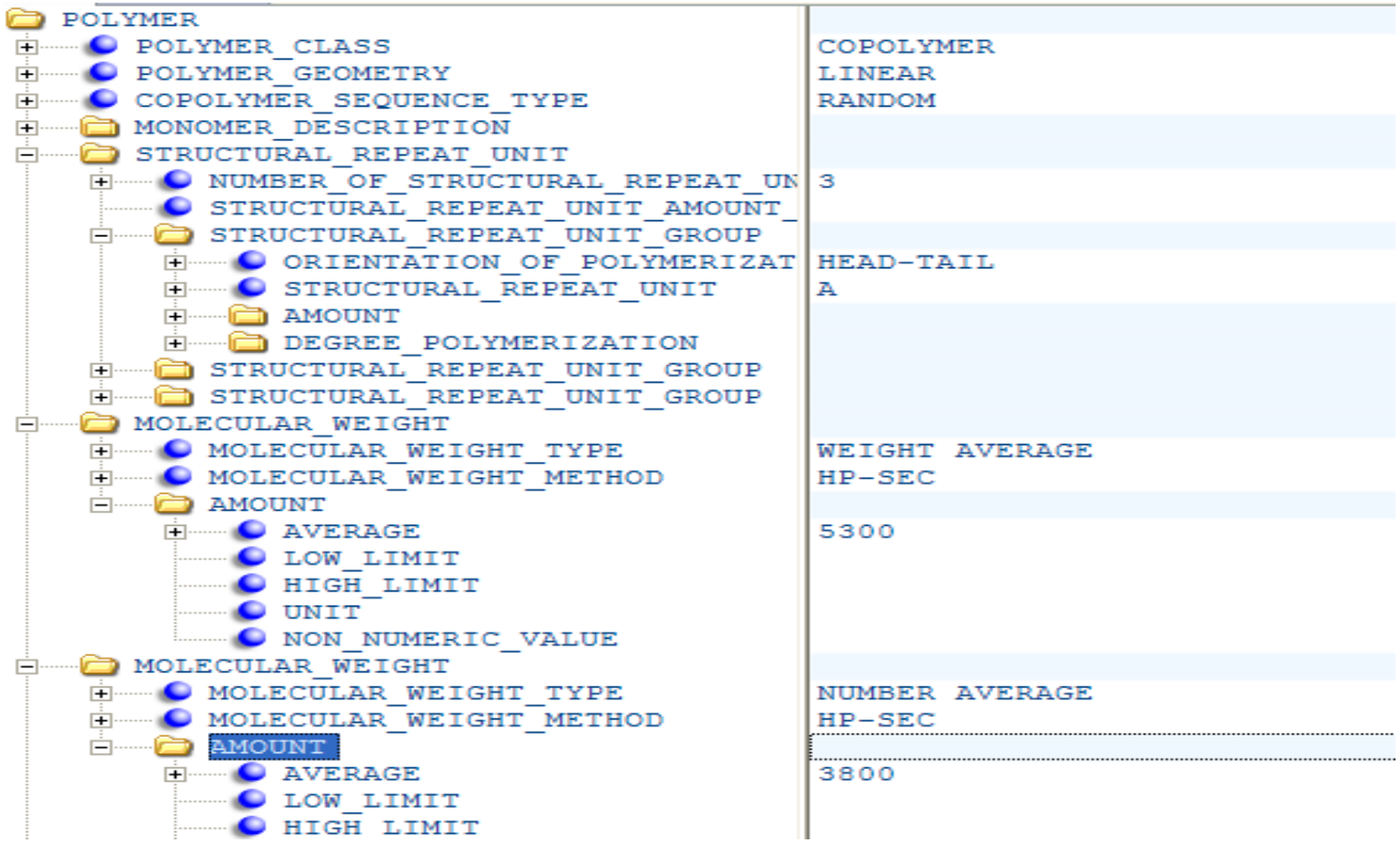
– All Heparins have the same structural representation







Enoxaparin Description



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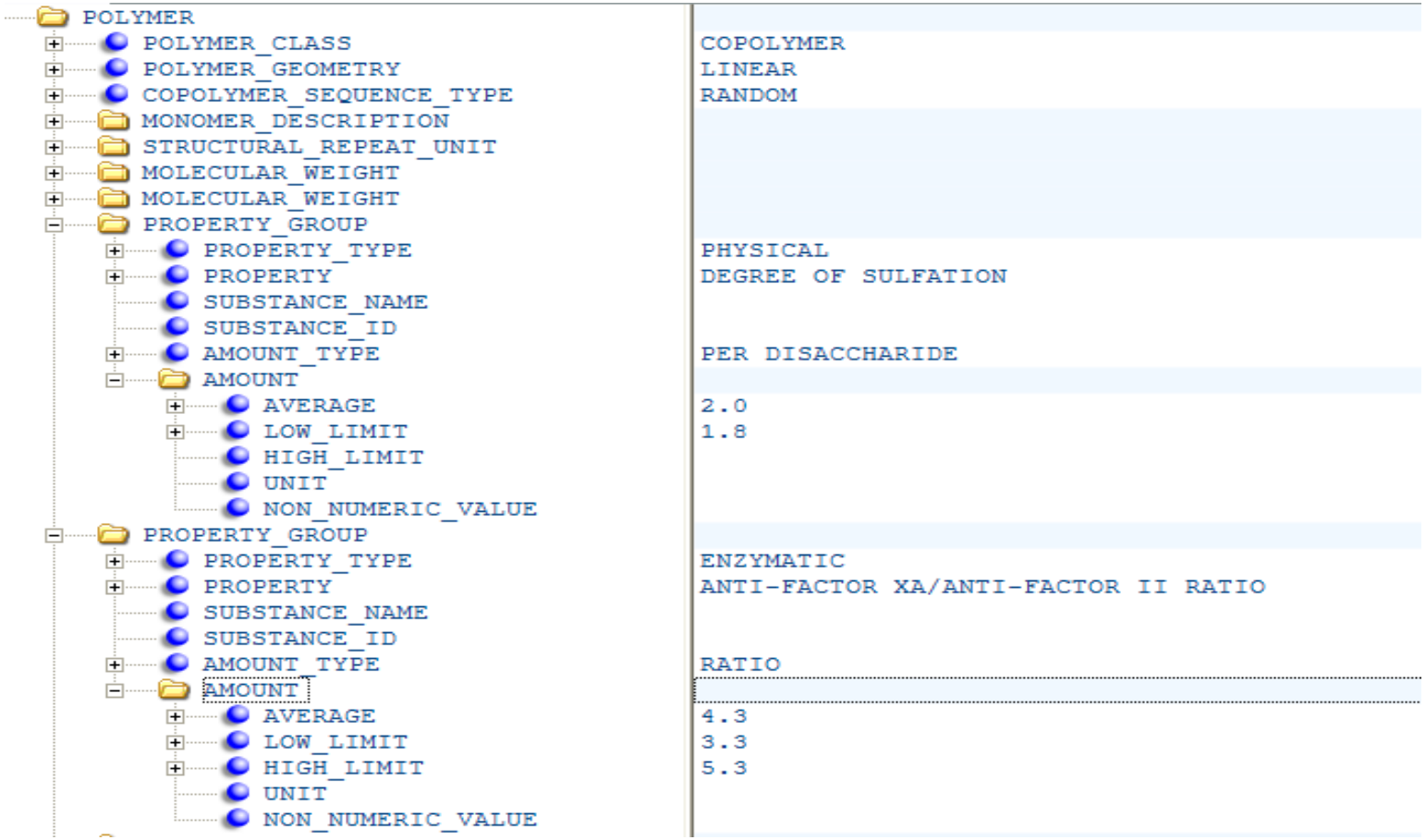

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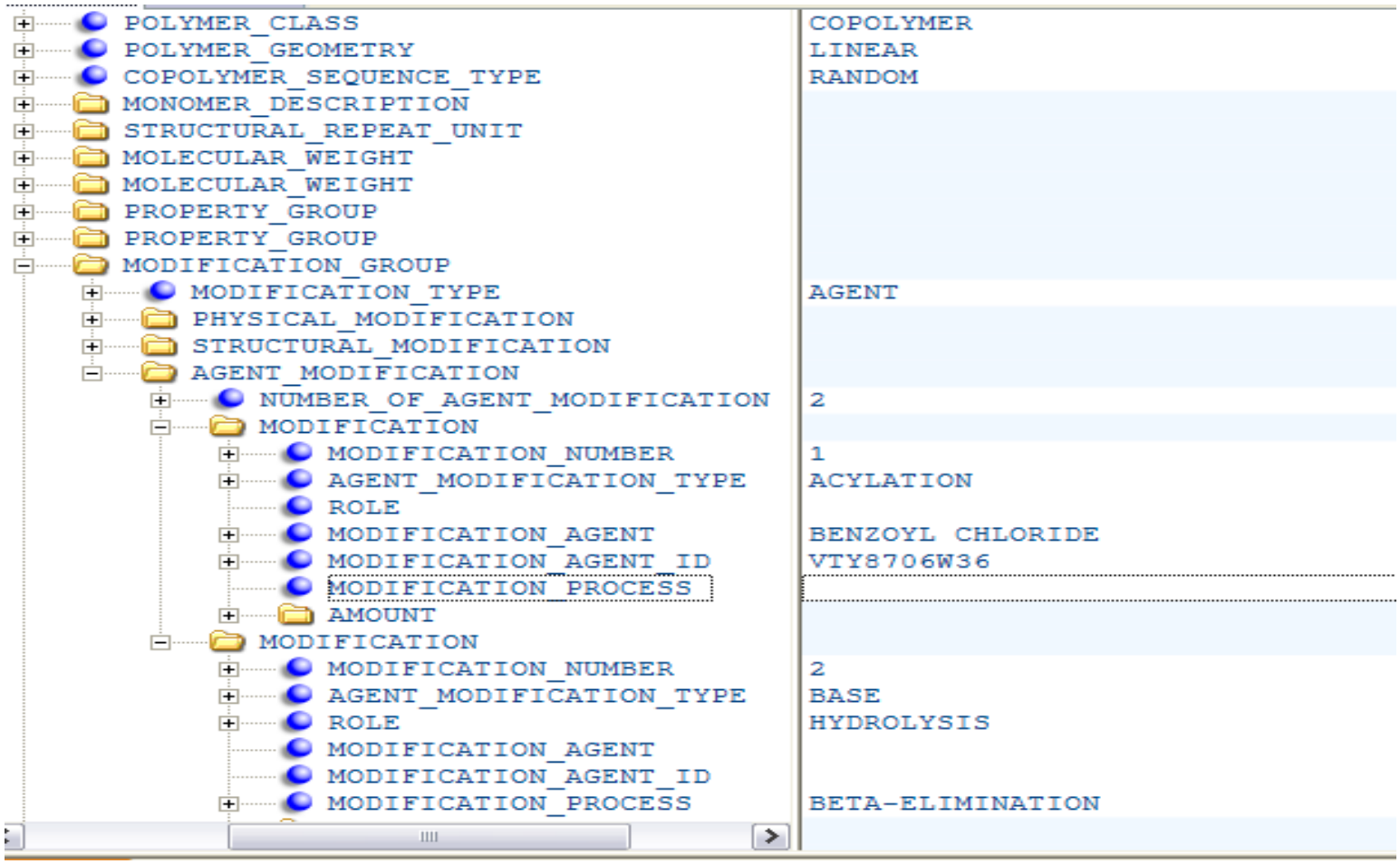

Enoxaparin Description